

WHAT IS CLAIMED IS:

1. A display system for a vehicle, which presents to a user a plurality of menu items respectively corresponding to functions of devices/equipment mounted on the vehicle by displaying an operation menu including some of the menu items on a screen of a display of the system, and allows the user to select one of the displayed menu items to perform the function thereof, the system comprising:

- an input unit to be operated by the user;
- 10 an operatability judgment unit which judges user's operatability of the input unit;
- a storage unit which stores hierarchically structured first menu information, the first menu information comprising a plurality of the operation menus respectively registered in a plurality of tiers of the first menu information; and
- 15 a display control unit which determines the operation menu to be displayed on the screen, based upon the operatability of the user judged by the operatability judgment unit, using the first menu information or a second menu information having a limited number of tiers as compared with the first menu information.

2. A display system according to claim 1, further comprising:
- a driving load determination unit which determines a driving load on the user who drives the vehicle, wherein
 - 25 the storage unit stores the first and second menu information, and
 - the display control unit determines, based upon the determined driving load and the operatability of the user, a timing when to shift from a process of displaying the operation
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menu using the first menu information to a process of displaying the operation menu using the second menu information.

3. A display system according to claim 2, wherein

5 the operatability judgment unit monitors operation time of the user to judge the operatability of the user, and changes the number of tiers of the respective first and second menu information, based on the operatability.

10 4. A display system according to claim 2, wherein

 the display control unit allows a continuous operation of the input unit if the number of remaining operation steps is less than a predetermined step number at a point where it is judged, based upon the driving load, that the process of
15 displaying the operation menu using the first menu information will be shifted to the process of displaying the operation menu using the second menu information, while the input unit is operated.

20 5. A display system according to claim 4, wherein

 the number of tiers of the second menu information is increased when the user frequently carries out the continuous operation of the input unit.

25 6. A display system according to claim 4, wherein

 an amount of steering wheel operation is recorded while the operation menu using the second menu information is displayed, and the number of tiers of the second menu information is decreased in a case where the amount of steering wheel operation is large.

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7. A display system according to claim 2, wherein

the operatability judgment unit judges the operatability of the user by monitoring an operation time thereof while displaying the operation menu, and records an average operation
5 time and amount of steering wheel operation while displaying the operation menu, thereby calculating a limit amount of steering wheel operation at a point where the average operation time exceeds a predetermined value, and stops displaying the operation menu in a case where an amount of steering wheel
10 operation exceeds the limit amount thereof.

8. A display system according to claim 2, wherein

the operation menu using the second menu information is displayed while an amount of steering wheel operation is small,
15 and when the amount thereof is increased before an operation step of the operation menu ends, the display control unit allows to continue only one step operation in the event the number of remaining operation steps is one.

20 9. A display system according to claim 1, wherein

the operatability judgment unit comprises a driving load estimation unit that estimates a driving load of the user,
the first menu information is a full menu information that comprises a selection operation menu including a plurality of
25 selection menu items for selecting functions of the vehicle-mounted devices, registered to a plurality of tiers; and an execution operation menu including a plurality of execution menu items for executing functions of the vehicle-mounted devices registered in a tier lower than the
30 plurality of the tiers of the selection operation menu,

the second menu information is a modified menu information that is produced by modifying the full menu information, and

the display control unit comprises a menu production unit that produces the modified menu information, wherein the display
5 control unit displays the operation menu by using the full menu information or the modified menu information based upon the estimated driving load.

10. A display system according to claim 9, wherein

10 the menu production unit produces the modified menu information so that the menu item that is selected more frequently is displayed with higher priority, based upon an operation history information of each of the selection menu items and the execution menu items.

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11. A display system according to claim 10, wherein

the menu production unit produces operation history information for each menu item divided by a weekday, a holiday or an hour belt, thereby to produce the modified menu information
20 such that the menu item that is selected more frequently corresponding to the weekday, the holiday or the hour belt is displayed with higher priority.

12. A display system according to claim 9, wherein

25 the menu production unit subdivides the selection menu item that is used frequently and produces the modified menu information comprising the subdivided selection menu item transferred to a upper tier.

30 13. A display system according to claim 9, wherein

the menu production unit produces the modified menu information comprising a selection integrated menu item that integrates a plurality of different menu items.

5 14. A display system according to claim 10, wherein

the menu production unit sets a learning coefficient that alters a learning speed for each of the selection menu item and the execution menu item, and alters the operation history information of each menu item based upon the learning
10 coefficient.

15. A display system according to claim 14, wherein

the menu production unit produces the selection integrated menu item that integrates a plurality of different menu items,
15 and sets the learning coefficient so that a learning speed of the menu item in a lower tier to the selection integrated menu item becomes slower than a learning speed of the menu item in a lower tier to the selection menu item contained in the full menu information.

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16. A display system according to claim 14, wherein

the menu production unit sets the learning coefficient so that the learning speed gets slower as a time elapse after each menu item has been selected becomes longer.

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17. A display system according to claim 14, wherein

the menu production unit sets the learning coefficient so that the learning speed gets faster as the estimated driving load is larger.

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18. An information display system for a vehicle comprising:
a display device that displays an operation menu, the
operation menu including a plurality of menu items corresponding
to a function of a vehicle-mounted device;
5 an input unit that selects the menu items of the operation
menu displayed; and
a controller that displays the selected menu items on the
display device, the controller comprising:
an operatability judgment unit that judges an
10 operatability of a user with respect to the input unit;
a storage unit that stores a first menu information
registering the operation menu to a plurality of tiers; and
a display determination unit that determines the operation
menu to be displayed by selecting the first menu information
15 or the second menu information a number of tiers of which is
limited compared with the first menu information corresponding
to the operatability of the user.